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KEY

TO

EATON'S ARITHMETIC,

GIVING

ANSWERS TO THE EXAMPLES

IN THAT WORK.

BY

JAMES S. EATON, M. A.,
INSTRUCTOR IN PHILLIPS ACADEMY, AND PRESIDENT OF THE ESSEX COUNTY
TEACHERS' ASSOCIATION.

BOSTON:
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1860.

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JANUARY 2[illegible]

Entered, according to Act of Congress, in the year 1858, by
JAMES S. EATON,
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THE following Key of Answers to examples in Eaton's Arithmetic is prepared in compliance with the reasonable demands of those Teachers who are using the Arithmetic as a text-book.

A key of Solutions, it is believed, would be deprecated by every skilful Teacher.

☞ Answers to examples omitted in the Key are inserted in the Arithmetic.

A KEY,

CONTAINING THE

ANSWERS TO EXAMPLES IN EATON'S ARITHMETIC.

---

§ 3. ADDITION.

Example.		Example.	
6.	5071	25.	5534
7.	44680	26.	2169
8.	4015807	27.	6416
9.	7247140	28.	$17740
11.	485466	29.	71708
12.	1635205	30.	8746386
13.	950000		16615818
14.	847202	31.	$84571886
15.	94935	32.	10376987423
16.	49697927	33.	9430685479
17.	43758518	34.	9153620488
18.	$58111	35.	$16710.69
19. 1810.	7239814	36.	$44286.99
1820.	9638191	39.	$6720
1830.	12860702	40.	8373648
1840.	17063353	42.	6077235573
20.	27332145	43.	666
21.	64230	44.	$274.90
23.	1399	45.	$120290.03
24.	4854		

§ 4. SUBTRACTION.

Example.		Example.	
7.	2488	25.	605
8.	691115393909047	26.	8745933
9.	7827262	27.	874727
10.	766795129248583	28.	365
11.	577749851324	29.	6959
14.	3204647054	30.	986337
15.	1750425049	31.	600305
16.	3172681168	32.	75985654
17.	1	33.	930000
18.	69842374	34.	1910
19.	197802198	35.	80048
20.	2145	36.	29
21.	9874078	37.	67
22.	1317	38.	18
23.	986611	39.	37741
24.	7690843032	40.	94760000

ADDITION AND SUBTRACTION.

Example.		Example.	
1.	837 bought. 275 sold. 250 given. 312 kept.	7.	490000 4675000
2.	86030	8.	8645257 6731009
3.	6269988	9.	202,281,093 4,140,269 12,591,294 38,896,124 13,322,521 6,860,689 10,959,682 11,191,876
4.	\$850000 \$83721886		
5.	742 years.		
6.	6538 " 558 " 5980 "		

§ 5. MULTIPLICATION.

Example.	
4.	4,099,596,898
5.	219,478,478,003
6.	3,593,658,182,596,616
7.	330,823,998
8.	410,321,203,491,363,739,530
10.	184,538,719,411
11.	780,541,608,003
14.	8,987,796,249
15.	220,133,459,476
16.	121,932,631.112,635,269
17.	99,999,999,980,000,000,001
18.	11,111,108,888,889
19.	3,703,703,629,629,630
20.	248,404,659,240,286,080
21.	369,120,793,361,690,448
22	78,271,880,680,185,984
23.	4,406,110,361,509,205,524,506
24.	485,313,716,210,410,832,971,116
25.	63,601,595,294,585,507,822,208
29.	194,152
30.	45,306
31.	566,568
32.	38,059,956
33.	827,658,432
34.	517,197,024
35.	48,385,638
38.	4,698,000
40.	59,874,000,000,000
44.	6,313,991,040,000
45.	463,953,315,000,000
49.	4,377,317,000,000
50.	427,071,338,400,000
53.	293,343,530,562
54.	227,797,569,155,574
55.	1,566,286,641,827,600,000
58.	4,725

Example.	
59.	432,000
61.	$57987
62.	817 m.
63.	7336 m.
64.	77486
66.	95400
67.	$11595
68.	$9724

§ 6. DIVISION.

Example.	Quotients.	Rem.	Example.	Quotients.	Rem.
6.	52954	3	42.	30	78654321
8.	14921		44.	28	275
9.	17539085		46.	83	3087
10.	715406265	8	48.	300	9999
13.	5086		49.	2010	7080
15.	12654	2	50.	10865	25821
16.	20160	4444	51.	10865	258210
17.	99891686	2955	52.	1358	14589
20.	757		54.	476	
21.	856		55.	888	
22.	345		56.	964	
26.	6541		57.	15608	5
33.	751	70	58.	5502	
35.	686	259	59.	89	
36.	6	101	60.		12
37.	8	2475	61.	128	
39.	40276	3	62.	1728	

§ 8. REDUCTION.

Examples in Reduction Descending and Reduction Ascending are answers to each other.

§ 9. GENERAL PRINCIPLES.

Art. 108.

Example.
5. 2, 3, 3, 5, 5, 7, 7, 11.
6. 2, 2, 2, 3, 3, 5, 5, 7, 11, 13.

Art. 109.

3. 1, 2, 4, 8, 16, 3, 6, 12, 24, 48, 9, 18, 36, 72, 144.
4. 1, 5, 25, 125, 2, 10, 50, 250, 4, 20, 100, 500.

Art. 110.

5	3	6.	24

Art. 113.

12.	1	15.	1
14.	1		

Art. 114.

3.	576	13.	320
4.	660	15.	220,515,449
5.	2,160	16.	5,040
6.	4,032	18.	11,048,293,973
9.	2,042,040	20.	245
10.	450	21.	273

---

§ 10. VULGAR FRACTIONS.

Art. 125.

Example.		Example	
5.	$\frac{897}{27}$	11.	$\frac{19482}{216}$
6.	$\frac{326}{593}$	12.	$\frac{22833822}{3578}$
10.	$\frac{13612}{3391}$	17.	$\frac{511}{9}$

Example.		Example.	
18.	$\frac{521}{3}$	23.	174
19.	$\frac{542983}{11}$	24.	73
20.	$\frac{1246}{13}$	25.	74698

ART. 126.

3.	$\frac{4}{795}$	11.	$\frac{3381}{3404}$
4.	$\frac{5}{489}$	12.	$\frac{47}{848380}$
5.	$\frac{7}{748}$	17.	$\frac{73}{108}$
6.	$\frac{27}{1987}$	18.	$\frac{156}{23}$
9.	$\frac{87}{780}$	19.	$\frac{78592}{99}$
10.	$\frac{1687}{875864}$	20.	$\frac{132}{364}$

ART. 127.

3.	$\frac{281}{406}$	19.	8
4.	$\frac{126}{4147}$	20.	88
5.	$\frac{161}{75}$	27.	$\frac{8}{105}$
11.	$\frac{7}{30}$	28.	9
12.	$\frac{40}{147}$	29.	18
16.	$\frac{1}{15}$	34.	$\frac{273}{2}$
17.	$\frac{1}{49}$		

ART. 128.

3.	$\frac{452}{464}$	15.	23
4.	$\frac{247}{1113}$	16.	$\frac{7}{4}$
5.	$\frac{831}{425}$	17.	$\frac{47}{17}$
6.	$\frac{11869}{4503}$	19.	$\frac{481}{591}$
9.	$\frac{7}{48}$	20.	$\frac{4}{19}$
10.	$\frac{182}{1485}$		

ART. 129.

4.	$\frac{151}{367}$	10.	$\frac{15}{364}$
5.	$\frac{890443}{801017}$	11.	$\frac{2}{3}$
6.	$\frac{19}{37}$	12.	$\frac{1}{12}$
7.	$\frac{5}{42}$	13.	$\frac{7}{8}$
8.	$\frac{3591}{16993}$	14.	$\frac{16}{1}$
9.	$\frac{1}{30}$	15.	$\frac{1}{48}$

ART. 130.

Example.		Example.	
7.	$19874\frac{4}{5}$	11.	$5132\frac{7}{15}$
8.	144	12.	$503\frac{31}{216}$
9.	563	13.	$323\frac{132}{176}$
10.	$63\frac{2}{3}$	14.	$202\frac{272}{4327}$

ART. 131.

4.	$\frac{781}{6}$	13.	$\frac{152399026}{12345}$
7.	$\frac{22374}{5}$	14.	$\frac{46090522}{6789}$
8.	$\frac{361842}{47}$	17.	$\frac{7562}{87}$
9.	$\frac{1088981}{157}$	18.	$\frac{2732340}{379}$
10.	$\frac{1490467}{895}$	19.	$\frac{846}{18}$
11.	$\frac{476929}{1728}$	20.	$\frac{126982}{173}$
12.	$\frac{1027828}{1973}$		

ART 132.

3.	$\frac{608}{1107}$	11.	$\frac{285}{13}$
4.	$\frac{65}{1315}$	12.	$389\frac{1}{3}$
5.	$\frac{35}{2}$	13.	$18\frac{2}{7}$
6.	$\frac{1375}{33372}$	14.	1
9.	$\frac{15}{2376}$		

ART. 133.

4.	$\frac{1760}{3080}, \frac{1400}{3080}, \frac{1232}{3080}, \frac{1155}{3080}$
5.	$\frac{1105}{1326}, \frac{306}{1326}, \frac{546}{1326}$
6.	$\frac{47880}{87780}, \frac{23408}{87780}, \frac{13860}{87780}, \frac{15675}{87780}$
7.	$\frac{1386}{3465}, \frac{990}{3465}, \frac{770}{3465}, \frac{630}{3465}, \frac{6930}{3465}$
8.	$\frac{621}{1656}, \frac{920}{1656}, \frac{504}{1656}$
9.	$\frac{120}{1020}, \frac{1360}{1020}\ \frac{255}{1020}, \frac{204}{1020}$
10.	$\frac{360}{840}, \frac{504}{840}, \frac{525}{840}, \frac{560}{840}$
11.	$\frac{3465}{630}, \frac{270}{630}, \frac{280}{630}, \frac{126}{630}$
12.	$\frac{2717}{1672}, \frac{456}{1672}, \frac{1144}{1672}$

Example.	
13.	$\frac{4085}{13889}$, $\frac{2183}{13889}$, $\frac{2261}{13889}$
14.	$\frac{2882275}{5294025}$, $\frac{3811698}{5294025}$, $\frac{2744050}{5294025}$, $\frac{2561625}{5294025}$, $\frac{962550}{5294025}$
17.	$\frac{18}{24}$, $\frac{20}{24}$, $\frac{14}{24}$, $\frac{9}{24}$
18.	$\frac{60}{140}$, $\frac{50}{140}$, $\frac{45}{140}$, $\frac{16}{140}$
19.	$\frac{63}{462}$, $\frac{210}{462}$, $\frac{48}{462}$, $\frac{49}{462}$
20.	$\frac{96}{180}$, $\frac{27}{180}$, $\frac{126}{180}$, $\frac{44}{180}$
21.	$\frac{18}{102}$, $\frac{10}{102}$, $\frac{27}{102}$, $\frac{15}{102}$
22.	$\frac{420}{540}$, $\frac{468}{540}$, $\frac{160}{540}$, $\frac{75}{540}$
23.	$\frac{180}{270}$, $\frac{120}{270}$, $\frac{225}{270}$, $\frac{36}{270}$, $\frac{70}{270}$
24.	$\frac{144}{414}$, $\frac{115}{414}$, $\frac{153}{414}$
27.	$\frac{4}{12}$, $\frac{3}{12}$, $\frac{8}{12}$
28.	$\frac{6}{12}$, $\frac{2}{12}$, $\frac{3}{12}$
29.	$\frac{4}{28}$, $\frac{7}{78}$
30.	$\frac{3}{36}$, $\frac{4}{36}$
33.	$\frac{17066368}{273640752}$, $\frac{115426448}{273640752}$, $\frac{222683592}{273640752}$
34.	$\frac{2680}{7035}$, $\frac{15477}{7035}$, $\frac{4095}{7035}$, $\frac{4020}{7035}$
35.	$\frac{18900}{3780}$, $\frac{25200}{3780}$, $\frac{2240}{3780}$, $\frac{864}{3780}$, $\frac{2835}{3780}$

Examples in Art. 134 and 135, are answers to each other. Also examples in Art. 136 and 137.

ART. 138.

6.	$1\frac{3}{5}$	25	$3\frac{137}{420}$ pk
7.	$1\frac{1}{4}$	26.	$\frac{288}{1120}$ wk.; $\frac{288}{160}$ d. $= 1\frac{128}{160}$ d.; $\frac{2601}{1}$ m. $=$ 2601 m.
8.	$2\frac{9}{28}$		
9.	$1\frac{12}{25}$	27.	$\frac{11187}{280}$ ʒ. $= 39\frac{267}{280}$ ʒ.
10.	$3\frac{25}{36}$	30.	$\frac{26}{55}$
14.	$1\frac{587}{1980}$	31.	$1\frac{45}{88}$
15.	$2\frac{100}{117}$	32.	$4\frac{1}{30}$
16.	$3\frac{251}{792}$	33.	$4\frac{25}{36}$
17.	$2\frac{343}{1188}$	35.	$27\frac{25}{264}$
20.	$4\frac{4}{7}$	36.	$19\frac{28}{73}$
21.	$4\frac{132}{504}$	37.	$26\frac{47}{73}$
24.	$8\frac{2}{25}$ cwt.	38.	$47\frac{59}{210}$

ART. 139.

Example.		Example.	
3.	$\frac{15}{25} = \frac{3}{5}$	23.	$23\frac{5}{7}$ h.
4.	$\frac{56}{87}$	24.	$9\frac{83}{146}$ h.
5.	$\frac{7}{49} = \frac{1}{7}$	25.	$38\frac{1}{46}$·5
6.	$\frac{19}{37}$	28.	$\frac{4}{35}$
7.	$\frac{19}{27}$	29.	$\frac{81}{88}$
10.	$\frac{211}{2336}$	30.	$\frac{11}{20}$
11.	$\frac{47}{65}$	31.	$\frac{2898}{3875}$
12.	$\frac{25}{58}$	32.	$\frac{420}{6059}$
13.	$\frac{77}{928}$	36.	$19\frac{31}{304}$
14.	$\frac{1028}{6715}$	37.	$14\frac{2}{3}$
17.	$\frac{35}{99}$	38.	$121\frac{112}{144}$
19.	$\frac{11275}{43407}$	39.	$203\frac{7}{8}$
22.	$\frac{93}{700}$ t. = $2\frac{23}{35}$ cwt.	40.	$11\frac{4}{5}$

ART. 140.

3.	$12\frac{811}{2520}$ s.	40.	$133\frac{1}{3}$ ft.
4.	$\frac{99023}{831600}$		
5.	$3\frac{81}{86}$	61.	$\frac{54317}{6720}$ s. = $\frac{54317}{560}$ d. = $\frac{54317}{140}$ qr.
6.	1 qt. $1\frac{1}{7}$ gi.		
7.	$1.56¼	71.	$46\frac{7}{8}$
8.	$7.87¼	73.	\$30.46$\frac{2}{15}$
9.	$50.80	75.	175
10.	$20.62½		
12.	$78.75	76.	Oxen, $180 Horse, $160 Wagon, $60
16.	7		
17.	6	78.	13 a. 12½ rd.
18.	5	79.	40
19.	$14.37½	80.	$5\frac{7}{29}$ bbl.
20.	$12.50	81.	$4944\frac{18}{35}$
36.	$6\frac{2}{33}$ oz.	82.	$12\frac{9}{14}$

§ 11. DECIMAL FRACTIONS.

ART. 154.

Example.		Example.	
4.	2072103.360104	9.	2.8568432723
5.	571711.89162714434	10.	5371.721
6.	1637.25074	11.	35000213.358004
7.	4922.06814	12.	153971.17741600005
8.	104452.704006		

ART. 155.

4.	832.670128	8.	.87218446
5.	869510.12305713	9.	374368.465731
6.	53.854	10.	1.5200642
7.	65999999.999934		

ART. 156.

9.	180.3774	16.	84672800000.
10.	.02634756	18.	5.78
11.	14136.226	19.	876940.
12.	.0000004	22.	214441.6
13.	1043.6556	23.	2.24
14.	10603.92	24.	2056200.
15.	564.23	25.	6809076.

ART. 157.

8.	.0327	20.	186.574 +
9.	.176382	22.	.00054276
10.	.478	23.	.04608
12.	23600.	24.	.0007842
14.	.5625	27.	.240575625
15.	1.370203125	28.	8.764
17.	1.259 +	29.	.01366703125
18.	19.551 +	30.	.000029296375
19.	1.865 +		

ART. 158.

Example.		Example.	
3.	.53125	6.	.5, .6, .078125, .12, .63398, .482758+ .462006+
5.	.4117		

ART. 159.

4. $\frac{953}{2000}$, $\frac{43849}{500000}$, $\frac{119}{2500000}$, $\frac{8}{125}$

ART. 160.

4.	.71614583+	11.	.984375
5.	.6482578125+	12.	.96529017 +
7.	.8499693+	13.	.7333719 +
8.	.4452989+	14.	.95025.
9.	.9027777+	15.	.45436658+
10.	.96875.		

ART. 161.

6.	6 oz. 10 dwt. 9 gr. +.	10.	3 c. ft. 12 cu. ft. 232.2432 cu. in.
7.	6 ℥. 7 ʒ. 1 ℈. 2 gr. +.		
8.	1 cwt. 3 qr. 3 oz. 3.2 dr.	11.	3 qr. 1 na. 2.0484 in.
9.	7 fur. 9 ch. 6.336 in.	12.	3 pk. .4096 pt.

ART. 162.

3.	$4234.375	13.	$584.26875
4.	$ 62.50	14.	$233.59375
5.	67.75	16.	$2760.60546875
6.	67.75	17.	$36.8671875
7.	Gain, $846.875 total; $12.50 per acre.	18.	$420318.240234375
		19.	8.263\frac{3}{8}$
10.	50c. per head; $50 total.	20.	1s. 10d. 3.39375 qr.
11.	$51.675	21.	$159.6875

§ 12. COMPOUND ADDITION.

Example.		Example	
3.	49£. 9s. 7d. 2qr.	11.	333m. 2fur. 17li. $6\frac{2}{25}$in.
5.	4lb. 1oz. 15dwt. 12gr.	12.	58yd. 3na. $1\frac{3}{4}$in.
7.	118yd. 2qr. $1\frac{1}{2}$ in.	13.	16circ. 10s. 24°. 37.′ 30″.
8.	93gal. 3qt. 2gi.	14.	234bu. 2pk. 5qt. 1pt.
9.	189a. 3r. 36rd.	15.	32t. 6cwt. 2qr. 5lb.
10.	213a. 3r. 32rd. 4yd. 2ft. 80in.		

§ 13. COMPOUND SUBTRACTION.

5.	2t. 15cwt. 3qr. 4lb. 1oz. 14dr.	17.	1yr. 1m. 9d.
6.	12lb. 7oz. 1dr. 15gr.	18.	4yr. 2m. 3d.
9.	7m. 1fur. 4rd. 5yd. 2ft.	19.	1yr. 0m. 7d.
10.	2circ. 331°. 69m. 4fur. 39rd. 5yd. 2ft.	20.	11yr. 1m. 10d.
		21.	39yr. 5m. 23d.
13.	1ft.	22.	111yr. 11m. 8d.
14.	1in.	23.	39yr. 2m. 7d.
16.	8yr. 3m. 27d.		

ART. 171.

1.	81a. 3r. 35rd.	6.	15cwt. 3qr. 8 lb.
2.	63m. 3fur. 27rd.	8.	5yd. 3qr. 2na. 1in.
3.	293a. 0r. 9rd. 407£. 1s. 10d.	9.	56gal. 3qt. 3gi.
		10.	1yr. 2m. 15d.
4.	*Variable.*	11.	82yr.
5.	15t. 3cwt. 2qr. 13lb.		

§ § 14 and 15. Examples in Compound Multiplication and Division are Ans. to each other.

§ 16. DUODECIMALS.

Example.		Example.	
4.	22692	15.	7359ft. 11′.
5.	82584	16.	317yd. 17ft. 9′
6.	825	18.	5c. 1c. ft.
9.	179ft. 1′. 10″. 6‴	19.	36c. 4c.ft. 2cu.ft. 9′
10.	1585ft. 4′	20.	5c. 3c.ft. 12cu.ft.
13	1153ft. 7′	21.	6c. 4c.ft. 6cu.ft. 10′. 4″
14.	28yd. 6ft. 6′		

§ 17. INTEREST.

6	\$ .497$\frac{5}{6}$	39.	\$ 55.486
7.	\$ .297	40.	\$ 145.447
8.	\$ .871$\frac{1}{6}$	43.	17£. 15s. 6d.
9.	\$ .125$\frac{5}{6}$	44.	20£ 16s. 11d. 3qr.
10.	\$ .220$\frac{1}{2}$	45.	24£. 4s. 4d.
15.	\$ 8.0788	50.	\$ 8.031
16.	\$12.36172$\frac{2}{3}$	52.	\$ 831.194
17.	\$ 3.06175	53.	\$2335.086
18.	\$ 3.16309	56.	\$ 347.555
19.	\$ 1.20848	57.	\$ 167.47
20.	\$ .4595	58.	\$ 2.408
21.	\$ .195676	60.	\$ 52.241
22.	\$4.175860$\frac{1}{6}$	61.	\$ 252.135
30.	\$ 217.106	62.	\$ 148.139
31.	\$ 10.554	63.	\$ 2.25
32.	\$ .228	64.	\$ 2.25
33,	\$ 388.996	65.	\$1033.346
34.	\$ 19.246	66.	\$2714.806
37.	\$ 423.936	67.	\$ 825.139
38.	\$ 28.111		

ART. 203.

6.	\$1348.569

Art. 204.

Example.	
2.	$50.001

Art. 207.

		Example.	
3.	7	17.	$25000.
5.	9	18.	$20000.
10.	2yr. 9m.	19.	$ 697.84
11.	5yr. 6m.	20.	$ 571.866
12.	16yr. 8m.	24.	$ 8095.811
13.	60yr.	25.	$ 80.
16.	$2500		

§ 18. COMPOUND INTEREST.

5.	$1049.71	10.	$ 30.599
6.	12£. 9d.	11.	$1462493.206
7.	$687.258	15.	$1469.701
8.	$ .278	17.	$1740.912
9.	$ 27.697		

§ 19. COMMISSION.

2.	$ 171.75	7.	$ 157.776
4.	$ 15.875	8.	$ 26.70 $1308.30
5.	$ 34.845		

§ 20. INSURANCE.

2.	$10000.	6.	$54.50
[illegible]	$ 698.75	8.	$53.304

§ 21. DISCOUNT.

Example.		Example.	
4.	$1643.836 $ 156.164	8.	$576.923
		9.	$950.721
5.	$ 815.738	10.	$ 10.101
6.	$ 761.905	11.	$ 38.722
7.	$ 39.051	12.	$ 10.194

§ 22. EQUATION OF PAYMENTS.

3.	9m. 22d. +	10.	May 8, 1856.
7.	$8\frac{2}{3}$m.	11.	79 days.
9.	June 8, 1853.	12.	9m. 21d.

§ 24. ANALYSIS.

2.	$392	18.	39
3.	36	19.	20
4.	519	20.	12
5.	115	21.	147000lb. 21000lb.
6.	115s.		
7.	$500	22.	147000lb. 126000lb.
8.	6		
9.	10	23.	147000lb. 14oz.
10.	$49		
11.	35ft.	24.	$8000
12.	$3\frac{1}{2}$m.	25.	$3\frac{2}{11}$m. $20\frac{5}{14}$h.
14.	3		
15.	9	26.	4
16.	3	27.	$1\frac{3}{8}$lb.

§ 26. PROPORTION.

Example.		Example.	
4.	240ft.	33.	49
5.	3ft.	34.	$147
6.	4ft.	35.	$76\frac{1}{2}$
9.	$9900	36.	21
10.	3	37.	97
12.	11	38.	10m.
14.	13a. 2r. 6rd.	39.	80rd.
15.	94a. 3r. 2rd.	41.	12
16.	130£. 9s. 6d.	42.	36
18.	$\$1495\frac{2}{7}$	43.	$9.50
19.	24 days.	44.	9
20.	$117.60	45.	5m.
21.	$1242.15	46.	$15\frac{3}{7}$
22.	3	47.	8
23.	30	49.	24 days.
24.	12	50.	9
25.	5	52.	$147
26.	$300	53.	45 days.
27.	$50000	54.	140 days.
28.	6m.	55.	$37812.50
29.	6oz.	56.	$\$10.12\frac{1}{2}$
30.	A, $16.83	57.	$1128
	B, $29.07	58.	$5400
31.	104	59.	3933m.
32.	105		

§ 27. COMPOUND PROPORTION.

5.	9.	10.	9m.
7.	$\$289.35\frac{5}{27}$	11.	$300
8.	$18.	12.	8
9.	$8.		

§ 28. CONJOINED PROPORTION.

5.	1375	6.	24

§ 29. PROFIT AND LOSS.

ART. **266.**	Ex. 2.	Gained $50 total, 66$\frac{2}{3}$c. per yd.
	4.	Made $30.75
ART. **267.**	Ex. 5.	25
	6.	20
	7.	3
ART. **268.**	Ex. 4.	15c.
	5.	$106.50
ART. **269.**	Ex. 3.	4.46\frac{3}{7}$
	4.	$100
ART. **270.**	Ex. 4.	25
	5.	20
	6.	Lost 10
	7.	50
ART. **271**a.	Ex. 2.	$20
ART. **271**b.	Ex. 3.	5\frac{5}{8}$
	4.	$10
	5.	165.78\frac{8}{9}$
	6.	207.81\frac{1}{4}$
ART. **272.**	Ex. 1.	Made $5
	2.	50
	3.	16$\frac{2}{3}$
	4.	1.04\frac{1}{6}$
	5.	$6
	6.	Lost 4$\frac{3}{8}$
	7.	45.45\frac{5}{11}$
	8.	2.29\frac{41}{171}$

§ 30. PARTNERSHIP.

Example.

4. A's $1428.07; B's $1224.06; C's $1032.08.
5. A, $\frac{4}{9}$ = 1333.33\frac{1}{3}$; B, $\frac{1}{3}$ = $1000; C, $\frac{2}{9}$ = 666.66\frac{2}{3}$.
6. A, $\frac{1}{3}$ = $50; B, $\frac{4}{15}$ = $40; C, $\frac{2}{5}$ = $60.
7. A, $\frac{26}{105}$ = 3.71\frac{3}{7}$; B, $\frac{79}{105}$ = 11.28\frac{4}{7}$.
8. A's, $6000; B's, $4500; C's, $7000; D's, $7500
9. A's, $100; B's, $250; C's, $450.
10. A, $186.60; B, $123.40; C, $208.80.
12. A's, 75.47\frac{9}{53}$; B's, 141.50\frac{50}{53}$; C's, 283.01\frac{47}{53}$.

Example.

13. 1st son, $1200; 2d son, $900; daughter, $600.

14. 1st Ans. A shall have $\frac{2}{3}$ and B $\frac{1}{3}$ of the profits.
2nd Ans. $\$3.33\frac{1}{3}$.

---

§ 31. COMPOUND PARTNERSHIP.

2. A's, $\$169.61\frac{37}{283}$; B's, $\$330.38\frac{246}{283}$.
3. A's, $\$1333.33\frac{1}{3}$; B's, $\$1350.87\frac{41}{57}$; C's, $\$1315.78\frac{54}{57}$.
4. B's, $\frac{231}{511} = \$198.90\frac{210}{511}$; C's, $\frac{155}{511} = \$133.46\frac{194}{511}$.

---

§ 32. TAXES.

2. $56.70
3. A's, $27.80; B's, $16.20; C's, $19.40; D's, $11.25.
4. A's, $504.50; B's, $253; C's, $378; D's, $301.50; E's, $738.25; F's, $295.75; G's, $250; H's, $179.50; J's, $156.
5. C's, $\$43.06\frac{2}{3}$; D's, \$127.80; E's, \$68.10; F's, \$190.30; G's, $\$40.23\frac{1}{3}$.

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§ 33. ALLIGATION.

Art. 285.

3. 8c. | 4. 33c.

Art. 292.

Note.—In Art. 290 it is said that there may be an infinite number of answers to examples in Alligation Alternate. The following are obtained by the linking process. Other answers, not involving fractions, may be obtained by the method in Art. 291.

Example.

3. 6, 3, 2 & 4 gal. at 3, 5, 10 & 13s.
4. 22, 9, 9, 15 & 18lb. at 20, 28, 33, 47 & 60c.
5. 40, 20, 10 & 160gal. at 0, $1.50, $1.80 & $2.
6. *8, 3, 3, 6 & 8lb.* at 4, 7, 11, 15 & 20c.

ART. 293.

Example.

2. 40, 40 & 120gal. at 6, 9 & 15s.
3. 126, $18\frac{9}{10}$ & $31\frac{1}{2}$gal. at 20, 25 & 33c.
4. 100, $23\frac{1}{13}$ & $53\frac{1}{13}$lb. at 24, 30 & 40c.
5. 9, 3 & 9oz. at 16, 18 & 22 carats.

ART. 294.

2. $\left\{\begin{array}{l}99\frac{24}{49},\ 82\frac{33}{49},\ 19\frac{14}{49},\ 19\frac{44}{49},\ 19\frac{44}{49},\ 19\frac{44}{49}\ \&\ 38\frac{13}{49}\text{lb. at 25,}\\ \text{31, 40, 42, 45, 50 \& 70c.}\end{array}\right.$
3. $448\frac{64}{107}$ gal. at 75, 90 & 100c. & $1654\frac{22}{107}$ gal. at 124c.
4. $49\frac{3}{13}$, $12\frac{4}{13}$, $12\frac{4}{13}$, $43\frac{1}{13}$ & $43\frac{1}{13}$ at 9, 10, 15, 18 & 24s.
5. 10, $6\frac{2}{3}$, $3\frac{1}{3}$ & 10oz. at 18, 20, 23 & 24 carats.

§ 34. SINGLE POSITION.

5. 50yr.
7. $1910.16.
8. Horse, $150; harness, $120; chaise, $200.

§ 35. DOUBLE POSITION.

4. $375.
8. 6 horses, 18 oxen and 36 cows.
9. $100.

§ 36. INVOLUTION AND EVOLUTION.

2.	46656	12.	9^3
3.	6^6	13.	10
4.	3^8	15.	5
6.	$10\frac{9}{16}$	16.	4
7.	$\frac{343}{27}$	17.	10
9.	.000000216	18.	6
10.	1		

§ 38. SQUARE ROOT.

Example.		Example.	
15.	2401	25.	19.904 +
16.	6561	26.	29.545 +
17.	7776	27.	13.709 +
18.	16807*	28.	7.062 +
23.	13.302 +	37.	.916 +
24.	5.047 +	38.	.61395 +

ART. 330.

7.	307.3499 + m.
9.	40rd.
11.	739
15.	11250lb.
17.	2.412, 2.861, 3.727 & 9 inches.
18.	(1) 255.146ft. 381.575ft. (2) 105.356ft. 195.191ft. (4) 300. ft. 476.969ft. (5) 264.574ft. 390.512ft.
19.	(1) 312.409ft. 306.757ft. (2) 200.249ft. 100.498ft. (3) 304.138ft. (4) 424.264ft. 390.512ft. (5) 320.156ft. 316.227ft. (6) 300ft.
29.	77rd.
30.	$9.102
31.	8.039in.
32.	1500
33.	20.784ft.

§ 39. CUBE ROOT.

9.	147	11.	333
10.	2002	12.	222

---

* *The unit's figure in Ex. 18, should be 9, instead of 6, as in the earlier editions of the Arithmetic.*

Example.		Example.	
13.	726*	26.	4.2
16.	1.442 +	30.	.949 +
17.	1.587 +	32.	1.666 +
18.	1.912 +	33.	1.771 +
19.	2.41 +	34.	178.505 +
20.	2.668 +	35.	7.4
21.	3.036 +	36.	1.673 +
23.	3.848 +	37.	$\frac{4}{42}$
25.	41.874 +		

ART. **336.**

Ex. 11. 1.575 —, .409 +, .287 + and .229 —

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§ 41. ARITHMETICAL PROGRESSION.

ART. **334.**	Ex. 5.	15th row, 31; 50th, 101
ART. **350.**	Ex. 6.	156

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§ 43. ANNUITIES.

ART. **371.**	Ex. 5.	$2744
	6.	$7980, including the Principal.
	7.	$11908, including the Principal.
ART. **372.**	Ex. 8.	$4446.168
	9.	$47793.28
	10.	$10127.998

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§ 45. MISCELLANEOUS EXAMPLES.

2.	Simple, $57.337; Compound, $59.943
6.	5

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* *The figure in the* place of millions in Ex. 13, should be 2 instead of 3.

Example.	
7.	Hind wheel, $10308\frac{4}{7}$; Fore wheel, $12026\frac{2}{3}$
13.	$2560
14.	Son, 2769£. 15s. 9d.; Daughter, 1666£. 14s. 6d.
15.	2d man, $6.35; A, $4.35; C, $ .60
20.	$1.50
21.	2, 2, 2, 2, 5, 5, 7
22.	1, 2, 4, 8, 16, 5, 10, 20, 40, 80, 25, 50, 100, 200, 400, 7, 14, 28, 56, 112, 35, 70, 140, 280, 560, 175, 350, 700, 1400, 2800.
23.	13
24.	June 14, 1857.
25.	Jan. 12, 1858.
26.	$1212.26
23.	86400
30.	48
34.	6m. past 2.
35.	French method, 10562695 J. yr. 342d. 14h. $35\frac{5}{8}$m. English method, 10562695938009650 J. yr. 28d. 20h. $35\frac{5}{8}$m.
37.	31824
38.	$2^{551} \times 1 = 2^{\underline{551}}$ last term. $(2^{\underline{551}}\ 1) \times 1 + 2 \overset{551}{=} 2^{\underline{552}}\ .1 =$ sum of the series, *i. e.*, cost of the house in cents.
39.	$1526.28
41.	36h.
44.	3628800. Or, excluding numbers whose left-hand figure is 0, 3265920.
45.	$12707.59
47.	(2) 61[illegible]s. (3) 59[illegible]s.
49.	$32\frac{4}{13}$m. past 5.
50.	$43\frac{7}{11}$m. past 2.
51.	$48\frac{96}{143}$m. past 8.
56.	$75618303760128399955015953 4.547
57.	$36893488147419103 2.31 $\times 2^{2840719704} +$

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§ 46. MISCELLANY.

Art. 399.

1. 93100. 2. 1230.41

Example.	
3.	89149050.
4.	14796.45
5.	3789798942.

Example.	
6.	3604.9627
7.	797691.
8.	3331533.

Art. 400. Ex. 2. 90¼ (a). Ex. 4. 56250000
Art. 401.(b) Ex. 5. 3596
Art. 408. Ex. 2. 52168.68
Art. 410. Ex. 3. .649£.
Art. 411. Ex. 3. 4s. 11d. 1qr.

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§ 50. CALENDAR & CHRONOLOGICAL PROBLEMS.

Art. 460.

32. b. Tuesday; d. Sunday.
33. b. Wednesday; d. Monday.
34. b. Wednesday; d. Sunday.
35. b. Sunday; d. Monday.
36. b. Monday; d. Thursday.
37. b. Wednesday; d. Friday.
38. b. Tuesday; d. Saturday.
39. b. Thursday; d. Saturday.
40. b. Tuesday; d. Monday.
41. b. Thursday; d. Monday.
42. b. Sunday; d. Saturday.
43. b. Monday; d. Sunday.
44. b. Friday; d. Sunday.

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§ 52. GAUGING.

2.	37.5 gal.	(Using the factor	.5)
3.	99.5 + gal.	"	.5
4.	24.7 + bush.	"	.7
5.	29.9 + bush.	"	.5

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§ 53. TONNAGE OF VESSELS.

4. 2324 + tons.

§ 54. PHILOSOPHICAL PROBLEMS.

ART. **522.**	Ex. 2.	275lb.
	4.	$8\frac{7}{31}$lb.
	6.	$5\frac{11}{17}$in.
	8.	$123\frac{3}{4}$in.
ART. **524.**	Ex. 2.	50lb.
	3.	2in.
	4.	3ft.
ART. **528.**	Ex. 2.	1600lb.
ART. **530.**	Ex. 2.	200lb.
	3.	5ft.
	4.	40ft.
	6.	16lb.
	7.	12ft.
	8.	4ft.
ART. **533.**	Ex. 2.	200lb.
	3.	10ft.
	4.	1in.
ART. **535.**	Ex. 2.	1000lb.
	3.	24in.
	4.	2in.